§ 51.3417 Optional test for specific gravity.

Tests to determine specific gravity shall be made in accordance with the procedures set forth in this section.

(a) The potatoes used for such determinations shall be:

(1) Taken at random from a composite sample drawn from containers representative of the lot.

(2) A comparable sample from a bulk load or storage bin.

(3) From a portion of the divided sample initially drawn or submitted for determination of grade or contract compliance.

(4) Representative of the lot with respect to size and quality.

The specific gravity for any lot of potatoes shall be the average of at least 3 corrected readings on separate tests from the composite sample. Specific gravity may also be determined, if requested, in accordance with size classifications or weighted value in proportion to size and/or grade separations in the lot.

(b) Specific gravity shall be determined by either;

(1) Calculation from the weights of the sample in air and in water made with USDA approved equipment. The reading obtained from each test shall be corrected for temperature variations using Table I.

(2) A hydrometer specifically designed for determining the specific gravity of potatoes.[3]

The pulp temperature of the potatoes and the temperature of water shall be recorded immediately before testing and the specific gravity reading corrected using Table I.

[3] The hydrometer is available from the Potato Chip/Snack Food Association, Crystal Square-3, Suite 903, 1735 Jefferson Davis Highway, Arlington, VA 22202.

TABLE I—CORRECTION FACTORS FOR SPECIFIC GRAVITY OF POTATOES [4]

[Corrected to zero at 50° F potato temperature and 50° F water temperature]

Potato temperature:	Water temperature (degrees Fahrenheit)										
	38°	40°	45°	50°	55°	60°	65°	70°	75°	80°
38°	−0.0021	−0.0020	−0.0018	−0.0018	−0.0020	−0.0023	−0.0029	−0.0038	−0.0047	−0.0056
40°	−.0017	−.0016	−.0014	−.0014	−.0016	−.0019	−.0025	−.0034	−.0043	−.0052
45°	−.0009	−.0008	−.0008	−.0006	−.0008	−.0011	−.0017	−.0026	−.0035	−.0044
50°	−.0003	−.0002	0000	0000	−.0002	−.0005	−.0011	−.0020	−.0029	−.0038
55°	+.0001	+.0002	+.0004	+.0004	+.0002	−.0001	−.0007	−.0016	−.0025	−.0034
60°	+.0004	+.0005	+.0007	+.0007	+.0005	+.0002	−.0004	−.0013	−.0022	−.0031
65°	+.0005	+.0006	+.0008	+.0008	+.0006	+.0003	−.0003	−.0012	−.0021	−.0030
70°	+.0006	+.0007	+.0009	+.0009	+.0007	+.0004	−.0002	−.0011	−.0020	−.0029
75°	+.0007	+.0008	+.0010	+.0010	+.0008	+.0005	−.0001	−.0010	−.0019	−.0028
80°	+.0008	+.0009	+.0011	+.0011	+.0009	+.0006	0000	−.0009	−.0018	−.0027
85°	+.0009	+.0010	+.0012	+.0012	+.0010	+.0007	+.0001	−.0008	−.0017	−.0026
90°	+.0010	+.0011	+.0013	+.0013	+.0011	+.0008	+.0002	−.0007	−.0016	−.0025
95°	+.0011	+.0012	+.0014	+.0014	+.0012	+.0009	+.0003	−.0006	−.0015	−.0024
100°	+.0012	+.0013	+.0015	+.0015	+.0013	+.0010	+.0004	−.0005	−.0014	−.0023

[4] To apply correction factor, change actual specific gravity reading by adding or subtracting the appropriate factor according to the plus or minus sign.

When requested to convert the weight in water of 5000 gram samples used in the weight in air versus weight in water method of specific gravity determinations, the conversion to total solids shall be based on Table II.

TABLE II—SPECIFIC GRAVITY CONVERSION CHART FOR 5,000 GRAMS OF POTATOES

Water weight	Specific gravity	Total solids
300	1.0638	17.2
310	1.0661	17.7
320	1.0684	18.2
322	1.0688	18.3
324	1.0693	18.4
326	1.0697	18.5
328	1.0702	18.6
330	1.0707	18.7
332	1.0711	18.8
334	1.0716	18.9
336	1.0720	19.0
338	1.0725	19.1
340	1.0730	19.2
342	1.0734	19.3
344	1.0739	19.4
346	1.0743	19.5
348	1.0748	19.6
350	1.0753	19.7
352	1.0757	19.8
354	1.0762	19.9
356	1.0766	20.0
358	1.0771	20.1
360	1.0776	20.2
362	1.0780	20.3
364	1.0785	20.4
366	1.0790	20.5
368	1.0794	20.6
370	1.0799	20.7
372	1.0804	20.8
374	1.0808	20.9
376	1.0813	21.0
378	1.0818	21.1
380	1.0822	21.2
382	1.0827	21.3
384	1.0832	21.4
386	1.0836	21.5
388	1.0841	21.6
390	1.0846	21.7
392	1.0851	21.8
394	1.0855	21.9
396	1.0860	22.0
398	1.0865	22.1
400	1.0870	22.2
402	1.0874	22.3
404	1.0879	22.4
406	1.0884	22.5
408	1.0888	22.6
410	1.0893	22.7
412	1.0898	22.8
414	1.0903	22.9
416	1.0908	23.0
418	1.0912	23.1
420	1.0917	23.2
422	1.0922	23.4
424	1.0926	23.5
426	1.0931	23.6
428	1.0936	23.7
430	1.0941	23.8
432	1.0946	23.9
440	1.0965	24.4
450	1.0989	24.9

TABLE II—SPECIFIC GRAVITY CONVERSION CHART FOR 5,000 GRAMS OF POTATOES—Continued

Water weight	Specific gravity	Total solids
460	1.1013	25.4
470	1.1040	26.0

Whenever the recorded water weight for an individual reading falls between two sets of numbers as indicated in Table II, the next higher reading shall be used.

§ 51.3418 Optional test for fry color.

Fry color may be determined in accordance with contract specifications by using the Munsell Color Standards for Frozen French Fried Potatoes, Third Edition, 1972, 64–1.[5] Select a minimum of twenty (20) potatoes at random from the official sample. Slice each potato from stem to blossom-end into ½ square inch strips. Unless otherwise specified, fry center cut strips in oil for a minimum of 3 minutes at 350°F or 2½ minutes at 375°F.

Subpart—United States Standards for Grades of Honey Dew and Honey Ball Type Melons

SOURCE: 32 FR 3213, Feb. 24, 1967, unless otherwise noted. Redesignated at 42 FR 32514, June 27, 1977, and further redesignated at 46 FR 63203, Dec. 31, 1981.

GRADES

§ 51.3740 U.S. No. 1.

''U.S. No. 1'' consists of honey dew or honey ball type melons which are mature, firm, well formed, which are free from decay, and free from damage caused by dirt, aphis stain, rust spots, bruises, cracks, broken skin, sunscald, sunburn, hail, moisture, insects, disease, or other means. (See § 51.3744.)

§ 51.3741 U.S. Commercial.

''U.S. Commercial'' consists of honey dew or honey ball type melons which meet the requirements of U.S. No. 1

[5] Munsell Color Standards for Frozen French Fried Potatoes, Third Edition, 1972, 64–1, may be purchased from the Munsell Color Co., 2441 North Calvert St., Baltimore, MD 21218.